

**Amendments to the Claims:**

Applicants have amended claims 1-4, 8, 9, and 11, and added new claims 12-20. This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1                   1.       (Currently Amended) A method of simulating relative motion of objects  
2 in computer animation comprising ~~the steps of:~~  
3                   ~ providing a motion of a kinematic object, where the kinematic object is an  
4 element of a computer animation display;  
5                   providing at least one dynamic object associated with said kinematic object,  
6 where said at least one dynamic object is another element of the computer animation display and  
7 where ~~motions~~ motion of said at least one dynamic object ~~are based on~~ is influenced by the  
8 motion of the kinematic object, wherein the motion of said at least one dynamic object is  
9 simulated using a physically-based numerical technique;  
10                  ~~selectively manipulating the motions of said at least one dynamic object to~~  
11 ~~simulate physical motion; and~~  
12                  manipulating the motion of said at least one dynamic object in response to the  
13 motion of the kinematic object when the motion of the kinematic object exceeds a predetermined  
14 threshold; and  
15                  displaying the elements of the computer animation display, including associated  
16 motions of said elements.

1                   2.       (Currently Amended) A method of simulating relative motion of objects  
2 according to claim 1 wherein ~~said step of selectively manipulating the motion of said at least one~~  
3 dynamic object comprises compensating for ~~unreasonable~~ motions of said at least one dynamic  
4 object when the motion of the kinematic object ~~undergoes exaggerated motion~~ exceeds the  
5 predetermined threshold.

1                   3.       (Currently Amended) A method of simulating relative motion of objects  
2 according to claim 2 wherein ~~said exaggerated~~ the motion of said at least one dynamic object is  
3 manipulated when the motion of the kinematic object comprises accelerations that are unrealistic  
4 for humans.

1                   4.       (Currently Amended) A method of simulating relative motion of objects  
2 according to claim 2 wherein ~~said step of selectively~~ the manipulating comprises compensating  
3 for the ~~unreasonable motions~~ motion of said at least one dynamic object when the kinematic  
4 object undergoes accelerated motions above a predetermined limit.

1                   5.       (Original) A method of simulating relative motion of objects according to  
2 claim 1 wherein said kinematic object is an animated character and said at least one dynamic  
3 object is coupled to the animated character.

1                   6.       (Original) A method of simulating relative motion of objects according to  
2 claim 5 wherein said at least one dynamic object is a representation of hair attached to the  
3 animated character.

1                   7.       (Original) A method of simulating relative motion of objects according to  
2 claim 5 wherein said at least one dynamic object is a representation of clothing attached to the  
3 animated character.

1                   8.       (Currently Amended) A method of simulating relative motion of objects  
2 according to claim 1 wherein said at least one dynamic object comprises a first set of dynamic  
3 objects and a second set of dynamic objects and ~~said step of selectively~~ manipulating the ~~motions~~  
4 motion of said at least one dynamic object comprises selectively manipulating motions of said  
5 first set of dynamic objects with respect to a first reference point on said kinematic object and  
6 selectively manipulating motions of said second set of dynamic objects with respect to a second  
7 reference point on said kinematic object.

1                   9.     (Currently Amended) A method of simulating relative motion of objects  
2 according to claim 1 wherein said at least one dynamic object comprises a plurality of dynamic  
3 objects coupled to a plurality of reference points on said kinematic object and wherein ~~said step~~  
4 ~~of selectively~~ manipulating the ~~motions~~ motion of said at least one dynamic object comprises  
5 manipulating the motions of each of said plurality of dynamic objects with respect to said  
6 plurality of reference points coupled thereto.

1                   10.    (Original) A method of simulating relative motion of objects according to  
2 claim 9 wherein said kinematic object is an animated character and said plurality of dynamic  
3 objects are coupled to the animated character and said plurality of reference points are different  
4 points on the animated character.

1                   11.    (Currently Amended) A method of simulating relative motion of objects  
2 according to claim 9 wherein ~~said step of selectively~~ the manipulating comprises compensating  
3 for ~~unreasonable~~ motions of said plurality of dynamic objects when the kinematic object  
4 undergoes exaggerated motion.

1                   12.    (New) The method of claim 1 wherein manipulating the motion of said at  
2 least one dynamic object comprises manipulating the motion of the said at least one dynamic  
3 object when acceleration of the kinematic object exceeds the predetermined threshold.

1                   13.    (New) A computer animation system comprising:  
2 a processor;  
3 a display;  
4 wherein the processor is configured to:  
5 receive information specifying motion for a kinematic object;  
6 compute motion for a dynamic object based upon the motion of the  
7 kinematic object, wherein the motion of the dynamic object is specified using a physically-based  
8 numerical technique; and

9                               manipulate the motion of the dynamic object in response to the motion of  
10 the kinematic object when the motion of the kinematic object exceeds a predetermined threshold;  
11 and  
12                               wherein the display is configured to display the kinematic object and the dynamic  
13 object and their associated motions.

1                           14.     (New) The method of claim 13 wherein the processor is configured to  
2 manipulate the motion of the dynamic object when acceleration of the kinematic object exceeds  
3 the predetermined threshold.

1                           15.     (New) The method of claim 13 wherein the kinematic object represents an  
2 animated character and the dynamic object represents a hair attached to the animated character.

1                           16.     (New) The method of claim 13 wherein the kinematic object represent an  
2 animated character and the dynamic object represents clothing attached to the animated  
3 character.

1                           17.     (New) A computer animation apparatus comprising:  
2                               means for receiving information specifying motion for a kinematic object;  
3                               means for computing motion for a dynamic object based upon the motion of the  
4 kinematic object, wherein the motion of the dynamic object is specified using a physically-based  
5 numerical technique;  
6                               means for manipulating the motion of the dynamic object in response to the  
7 motion of the kinematic object when the motion of the kinematic object exceeds a predetermined  
8 threshold; and  
9                               means for displaying the kinematic object and the dynamic object and their  
10 associated motions.

1                           18.     (New) A computer program product stored on a computer-readable  
2 storage medium for simulating relative motion of objects, the computer program product  
3 comprising:

4                   code for receiving information specifying motion for a kinematic object;  
5                   code for computing motion for a dynamic object based upon the motion of the  
6 kinematic object, wherein the motion of the dynamic object is specified using a physically-based  
7 numerical technique;  
8                   code for manipulating the motion of the dynamic object in response to the motion  
9 of the kinematic object when the motion of the kinematic object exceeds a predetermined  
10 threshold; and  
11                   code for displaying the kinematic object and the dynamic object and their  
12 associated motions.

1                   19.     (New) A computer-implemented method of simulating relative motion of  
2 objects in computer animation, the method comprising:  
3                   receiving information specifying motion for a kinematic object;  
4                   computing motion for a dynamic object based upon the motion of the kinematic  
5 object, wherein the motion of the dynamic object is specified using a physically-based numerical  
6 technique; and  
7                   manipulating the motion of the dynamic object in response to the motion of the  
8 kinematic object when the motion of the kinematic object exceeds a predetermined threshold.

1                   20.     (New) The method of claim 19 wherein manipulating the motion of the  
2 dynamic object comprises manipulating the motion of the dynamic object when acceleration of  
3 the kinematic object exceeds the predetermined threshold.